DOCUMENT RESUME

ED 419 305 EA 029 124

TITLE	New American High Schools: Preparing Students for College and Careers. Seventh Annual Business Week Awards for Instructional Innovation.
INSTITUTION	McGraw-Hill Book Co., New York, NY.; Business Week, New York, NY.; National Center for Research in Vocational Education, Berkeley, CA.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE	1998-00-00
NOTE	29p.; For profiles of the same ten schools, see EA 029 111.
AVAILABLE FROM	McGraw-Hill Educational and Professional Publishing Group, 1221 Avenues of the Americas, New York, NY 10020; phone: 212-512-6512; fax: 212-512-4769.
PUB TYPE	Guides - Non-Classroom (055) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Adolescents; Curriculum Development; Educational Improvement; *Educational Innovation; *High Schools; Models; Student Development; *Theory Practice Relationship
IDENTIFIERS	New American Schools

ABSTRACT

A "New American High School" is a place that prepares students for a global, knowledge-based economy, helping them to be effective citizens, parents, and workers. Case histories are provided for 10 high schools that received awards for instructional innovation. These schools were chosen by the United States Department of Education and the National Center for Research in Vocational Education as leading examples of New American High Schools. This type of school, where students achieve high levels of academic and technical skills, prepares students for college and careers. The schools provide opportunities for learning by doing--in classrooms, in the workplace, or through community service. The students often learn in the context of a career major or other special interests. Students may work with teachers in small schools-within-schools, they may receive extra support from adult mentors, and they typically have the support of a caring community. The profiles examine the schools' philosophies, focusing on what they have done to fashion a curriculum that meets the needs of their students. Career exploration is an important part of these educational philosophies, creating an environment where students learn by doing. (RJM)

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EA 029 124

Seventh Annual Business Week Awards for Instructional Innovation

NEW AMERICAN HIGH SCHOOLS

PREPARING STUDENTS FOR COLLEGE AND CAREERS

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SEVENTH ANNUAL BUSINESS WEEK AWARDS FOR INSTRUCTIONAL INNOVATION

NEW AMERICAN HIGH SCHOOLS

PREPARING STUDENTS FOR COLLEGE AND CAREERS

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SEVENTH ANNUAL BUSINESS WEEK AWARDS FOR INSTRUCTIONAL INNOVATION

NEW AMERICAN HIGH SCHOOLS

PREPARING STUDENTS FOR COLLEGE AND CAREERS

THE NEW AMERICAN HIGH SCHOOL:

Imagine a High School Where Students...

- achieve high levels of academic and technical skills
- prepare for college and careers
- learn in the context of a career major or other special interest
- learn by doing — in classrooms, workplaces, or community service
- work with teachers in small schools-within-schools
- have the support of a caring community
- receive extra support from adult mentors
- access a wide range of career and college information
- benefit from strong links between high schools and postsecondary institutions
- use technology to enhance learning

New American high schools are preparing students for a global, knowledge-based economy. To be effective citizens, parents, and workers in this new economy, all young people will need a higher level of academic, technical, communications, and information-processing skills. Students will need to be able to identify and solve problems, work in teams, and make effective decisions. The mass-production learning of the industrial age is ill-suited for the information age.

We at ***Business Week*** *and* ***McGraw-Hill School Publishing Company*** *feel that it is important to recognize and applaud schools that are striving to provide this kind of preparation for students. We are therefore honoring ten outstanding schools as winners of the Seventh Annual Business Week Awards for Instructional Innovation. These schools were also chosen by the United States Department of Education and the National Center for Research in Vocational Education as leading examples of New American High Schools.*

New American High Schools are preparing students for college and careers. They are the places where students achieve high levels of academic and technical skills. The schools provide opportunities for learning by doing — in classrooms, workplaces, or community service. Students often learn in the context of a career major or other special interests. Students may work with teachers in small schools-within-schools; they receive extra support from adult mentors, and they have the support of a caring community.

It is our hope that more schools will become inspired by the ten examples presented here. Please call these schools' principals or superintendents for more information and strategies. They are eager to share what they have learned, and as their excellence is passed on, we as a community benefit.

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Chicago High School for Agricultural Sciences

Students at the Chicago High School for Agricultural Sciences might graph a cornfield in math class or write a report on agri-business in English class. Agricultural science is woven into all areas of the curriculum at this remarkably successful school.

At first, the idea of an agricultural school in the middle of one of America's major urban centers may seem a bit odd, but there is nothing odd about this school's accomplishments with inner-city students. The Chicago High School for Agricultural Sciences (CHSAS) has limited resources, and most of its mainly African-American and Latino students are classified as "at risk." Yet its partnership of faculty, business leaders, community members, and energized school leaders has achieved high rates of attendance (92%), graduation (93%), and student placement in four-year colleges and universities (72%). The school generates more than one million dollars in scholarships, and most of its students go on to major in agriculture-related fields. How is all of this possible? The success of CHSAS is built on six foundations.

Philosophy

The principal believes that the philosophy of the school "has always been a little bit different from most of what you would call vocational schools...in that it was always designed to be both academic and vocational, and that the two were not considered as one being better than the other....This is a community partnership that still believes in developing a youngster who can think and a youngster who can do: the true Renaissance person."

High Expectations and High Standards

The faculty at CHSAS emphasize a strong academic curriculum that provides students with all the courses required for entrance into colleges and universities. Every student is assumed to be preparing to go to college to continue his or her career development. Because of this, students graduate with 31 credits, while the required minimum for the state of Illinois is 20.

The students set high expectations for themselves as well. Sheree plans a pre-med pursuit; Terence is going to Iowa State to study Food Science and Technology; Everett will be attending a culinary school; Karisse hopes for a career with the USDA; Veronica will be attending the University of Nebraska in food science; and Kimberly wants to major in elementary education.

Curriculum Integration

From its beginning in 1985, CHSAS was designed with an integrated curriculum in which agriculture is as important as English. Agricultural science is woven into all content areas of the curriculum, and teachers work to complement the subjects being taught in each other's classes. Students enthusiastically describe how this works from their viewpoint. They tell of the French teacher who assigns a report on agriculture in France, and the English class in which they research and write about careers in agri-business. Math teachers use landscape examples or have students graph cornfields and create production charts. An accelerated geometry class uses an applied-agricultural approach. In science classes students do research projects, sometimes teaming up with industry leaders like Armour Foods to investigate subjects such as the fat content in meat. Science classes have also used the school farm to study soil erosion.

A number of teachers combine their efforts each year in the preparation of a Thanksgiving dinner. The primary focus is, of course, preparing the food, but the teachers have incorporated at least twenty related activities, such as writing a newspaper article; doing a nutritional analysis of the meal; supplementing the meal with ethnic, low-fat, and vegetarian foods; and developing recipes.

Work-Based Learning

Between thirty and thirty-five students (mainly seniors) have the opportunity to participate in a research apprenticeship, where they spend six weeks on a college campus working with a professor on his or her research. They earn a stipend and maintain a journal of their experiences.

Everyone participates in one work project during the summer, many of them on the school farm. Between twelve and fifteen other students are involved in summer work on a production farm. Still other students work in jobs and internships through the Agricultural Cooperative Education (ACE) program.

An example of an ACE opportunity was one student's summer internship at the Brock's Candy Factory. As a laboratory assistant, she tested the fat content of milk, the particle size of chocolate, and the moisture levels in different hard candies. She learned to measure glucose viscosity, and to extract fat from milk so that it would meet federal and state requirements.

Partnerships

The school has substantial relationships with many external partners. Monsanto and American Cyanamid have taken up to thirty faculty for extended in-service training at their home facility. The Chicago Board of Trade participates in the ACE program. The USDA, Eli's Cheese Cake, the Department of Soil Conservation, and Quaker Oats are just some of the partners who contribute to the success of CHSAS.

The school presently has a "2+2" agreement with Truman Junior College, allowing students to earn dual credit, or advance placement in a two-year associate degree program, for classes taken in the eleventh and twelfth grades. With Daley Junior College, CHSAS is developing a tech-prep relationship in horticulture. A third college, Harold Washington, is being developed as a 2+2 opportunity in finance.

Staff Development

Staff development is a major focus in the school. Teachers are not only qualified in their particular subject area, but are well informed in the field of agricultural sciences. All teachers are expected to participate in a variety of activities outside school, and bring their experience back to the students. The principal is active in keeping them informed of opportunities for such activities, which range from making corporate contacts to attending Minorities in National Resources and Related Sciences conferences, to taking students on a trip to Russia.

Photo: Richard Saal

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Despite limited resources the CHSAS has high attendance, graduation, and college-placement rates.

David Douglas High School

The David Douglas High School uses counseling, hands-on projects, and an emphasis on technology to prepare students for the future. Student-run, school-based enterprises include a bank, a store, and a restaurant, while partnerships with area businesses provide students with valuable experience and new ways to learn.

In the fall of 1993, David Douglas High School and the Oregon Business Council (OBC) joined in a partnership to design a high school program that would meet the expectations of the Oregon Education Act for the 21st Century, and successfully develop a model that could be used by other districts and communities. Their vision was an eight-point plan of action which included both the David Douglas Model District Partnership (a K–12 effort), and the site-based Project STARS—a high school effort to prepare students for college and the world of work. What resulted from this partnership was a multi-faceted, long-term strategy for school restructuring that involved community and business leaders, parents, students, school administrators, and teachers. Together, these stakeholders have redefined David Douglas High School and embarked on a journey that is making a significant difference in the lives and futures of all students.

Located in east Portland, David Douglas High School serves 1,852 students, who reflect Oregon's urban community well. The school represents a population with a variety of special needs and interests; in response to this, it offers a comprehensive program of study while at the same time preparing students for an increasingly competitive job market.

Academic and Technical Skills

David Douglas is a state pilot site for the CIM (Certificate of Initial Mastery) and CAM (Certificate of Advanced Mastery) programs outlined in the state's Education Act for the 21st Century. These proficiency-based certificates are designed to provide added value to the traditional high school diploma. Work on completing the details of the CAM is still in progress at the state level, but David Douglas is already piloting the CAM through its career paths. Beginning with the Class of 1999, all students will have to earn a CIM to graduate. In order to receive the CIM, students must be proficient in all CIM ninth- and tenth-grade required courses, which include English, social studies, math, science, wellness, Personal Finance and Careers, and technology. Students must present three work samples for each of the CIM skills, and score in the average-to-proficient range on standardized tests.

Project "Stars"

Project STARS (Students Taking Authentic Routes to Success), structures the school's learning environment with an eye toward identifying and planning for long-term educational and career goals. Every student entering the school begins an initial career exploration in middle school. This is followed by an intense semester of career exploration in the ninth and tenth grades. A flexible, individualized education plan is developed for the high school years, as well as the steps beyond. A number of pathways are articulated between David Douglas and local community colleges, especially Mt. Hood Community College.

Much like a college curriculum, the ninth and tenth grades are devoted primarily to general study, reflected in the CIM courses, and the eleventh and twelfth to working within a major area of study, or a CAM. All David

Douglas students participate in one of seven broad career areas, called "constellations," which reflect the six career areas established in the state legislation and an additional Hospitality constellation created at the school. These are: Social & Human Services, Health Sciences, Business & Management, Industrial & Engineering Systems, Natural Resources, Arts & Communications, and Hospitality, Tourism & Recreation.

All ninth-grade students have a faculty mentor—a teacher or administrator—who works with the student to support academic success and to manage the student's CIM portfolio. Additionally, David Douglas staffs a Career Resource Center for students who wish to do independent career or college exploration.

Teachers from different constellations have the opportunity to work together, allowing for creative interaction and opening up new areas of cross-training for students and teachers alike. Many teachers at David Douglas work together on coordinated projects or team-taught courses. An example is the Health Sciences course for juniors and seniors, team-taught by Joe Bushman and Sharon Webster. In this course, students learn all aspects of the industry—including ethics, communication, and finance—as well as health skills. Teachers, school administrators, and business partners have also joined together to form interdisciplinary CAM design teams which meet regularly to establish curricula, set policy, and determine how to best serve the students enrolled in each career constellation.

Learning by Doing

Students participate in learning experiences through a variety of hands-on projects, including the operation of numerous school-based enterprises; job shadowing and internships with the school's external partners; and class and community service projects with peer teams and outside adult mentors. For instance, in the Business and Management constellation, students run a school store and the Bank of David Douglas, which is a satellite branch of a commercial bank open to the entire community. Students in the Arts and Communications constellation are developing a graphic arts business and are writing and producing their own plays. In Health Sciences, students learn to be trainers of first aid and cardiopulmonary resuscitation skills. One class in the Natural Resources constellation is transforming Midland Park into an environmental education park by designing and building ecosystem displays. Students in Social and Human Services spend forty hours in community service work, which may include shadowing a sheriff's deputy or a district attorney, studying forensics, or operating a community preschool for needy families and teen mothers. All school-based enterprises and projects are supervised by an elected student board and business professionals, with teachers acting as mentors and advisors.

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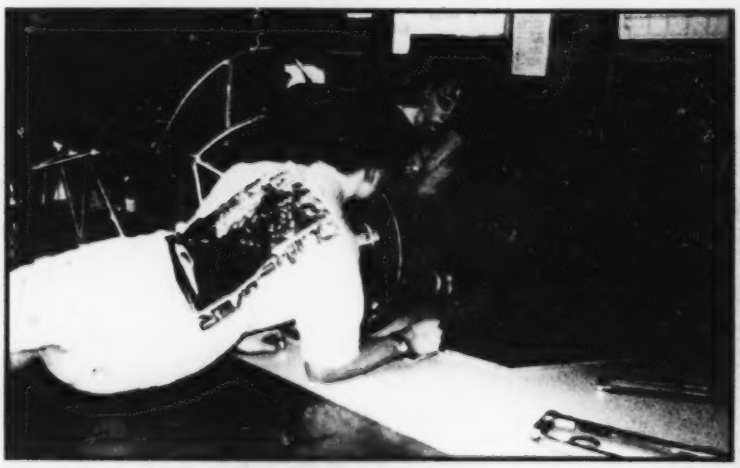
Creative interaction among teachers opens up new areas of cross-training for students and teachers alike.



Encina High School

Small school-within-a-school academies provide the diverse student body at Encina with a stable, nurturing environment that enhances students' ability to achieve.

Three years ago, Encina High School in Sacramento, California, embarked on a journey of organizational change. In an intensive two-day seminar called the Search Conference, stakeholders such as staff, students, parents, administrators, district Board of Education representatives, industry partners, and others from the community explored the past history, present situation, and desired future direction of the school and its community. From this conference and five million dollars of hard-earned grants emerged a career-related reform plan for Encina that has been implemented with remarkable success.

Encina High School, located in the west end of Sacramento County, is a diverse school. The student population is 18% African-American, 8.5% Asian-American, 24% Hispanic, 46% Caucasian, and 3.5% other. Encina High is a magnet center for English as a Second Language students in the district; thirty different languages are spoken, and almost 25% of the students speak English as their second language.

The School of Career Academies

The seven-year-old Health Careers Academy at Encina High is the model for the rest of the academies in the school. The three-year academy enrolls 100–150 students and provides a "rigorous academic education with a health care focus." It integrates academic classes, career-related technical courses, and extensive partnerships with the health industry. Students take core courses in English, social studies, math, science, and a vocational series—Health Technology I, II, and III. By the time a student graduates, he or she is prepared for post-secondary education and for entry-level employment.

The stakeholders at Encina High School decided that all students could benefit from being in one of five academies. There is a Freshman Academy, which includes all ninth graders and facilitates their exploration of career possibilities. The tenth- through twelfth-graders have a choice of one of four academies: (1) Health Careers Academy, (2) Graphic Arts Academy, (3) Academy of Business Careers, and (4) Academy of Career Exploration. The Academy of Career Exploration includes students who are interested in criminal justice and human development, or who are not yet ready to focus on health, business, or graphic arts.

Curriculum Restructuring

Encina High School has revised the focus of its curriculum and implemented new teaching strategies. Encina's entire staff actively supports the school's transition to block scheduling, greater faculty collaboration, the integration of academic and vocational courses, work-based learning, and the use of technology to enhance learning. All of these reforms help students see the relevance and connectedness of their curriculum.

The schedule at Encina High School has four ninety-minute periods per day on Monday through Thursday. On Fridays, students attend all eight of their classes for approximately thirty minutes each.

During one ninety-minute period each week, teachers from all of the core academic disciplines and technical courses meet together to discuss individual student's progress and inter-disciplinary curriculum development. Each academy has at least one integrated project per year that combines career themes with academic classes. Academic teachers are required to go out into the workplace during the summer to learn about their academy's professional field.

The academies at Encina High School offer students workplace mentors, job shadowing experiences, paid and unpaid apprenticeships and internships, and field trips to

worksites. According to Pat Lyons, the Health Careers Academy Coordinator, work-based learning experiences help students with the difficult transition from being a high school student to being a responsible team member at a worksite.

Finally, Encina High School uses the latest technology to enhance learning. The computer instructor, Stuart Freedman, advises teachers, students, and community members before, during, and after school in a computer lab with thirty state-of-the-art computers that provide access to the Internet.

Community Support

The Alliance for Excellence, composed of Encina High School and its feeder middle and elementary schools, has implemented a growing system of support and social services, including health, social, counseling, and educational services—for students and families in the community. Advance 2000 is a program that provides educational and support services for students and families who are not English-language proficient.

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The ultimate goal of Encina High's educational and support services is to achieve an economically and socially stable, productive community.

Fenway Middle College High School

The school-to-work component is central to Fenway's program, with students in every grade working with the school's business partners, and seniors completing a six-week full-time internship. Student portfolios and hands-on learning projects play a large part in student assessment, and graduation is performance- rather than credit-based.

Fenway Middle College High School is a Pilot School within the Boston Public School system. The school serves approximately 250 students, who have chosen it as an alternative to their neighborhood schools. As a member of both the Coalition of Essential Schools and the Middle College High School consortium, Fenway dedicates itself to finding the best ways to serve its students.

An Integrated House System

All Fenway students belong to one of three houses: Children's Hospital, CVS Pharmacy, or Cross-Roads (partnered with the Boston Museum of Science). Fenway's Houses are founded on the commitment of the business partners to the success of the school and its students. Each of the business partners has funded a job-site coordinator for the school, and has committed time, internship sites, and financial resources. This structure does not limit students' choices. For example, a Children's Hospital student interested in architecture can do an internship in the Hospital's Planning and Development Office to gain experience with building codes and blueprints.

The Children's Hospital Collaborative is the oldest of the three houses. Students in this program study a curriculum developed in collaboration with the Hospital staff. In this program students learn a wide range of skills, from communication and problem-solving to practical science and medical ethics. Additionally, a science curriculum written specifically for the Fenway program involves many on-site learning experiences. Students study the cardiorespiratory system, for example, and then go to the hospital's exercise cardiology laboratory to witness a real-world application.

The CVS house works with students who are interested in exploring a career in pharmacy. It requires a serious commitment from the students, as additional summer course work and after-school activities are a key component of the program. Currently, students in this House are working with the corporation to open a new store in Boston. This project involves students in the marketing research and feasibility studies necessary to undertake opening a new store.

Students in the Crossroads House give tours to second-graders at Boston Museum of Science as a part of their initial work experience. Students in this house do their internships in a variety of settings. For example, one student began writing the weekly staff memos for the museum during his junior year; this led to a senior internship at the Boston Globe where he could gain experience as a writer.

Each teacher at the school is identified with one of these houses and is a member of an academic team. This allows for extensive curriculum collaboration and integration of math, science, English, social studies, and career interests. For example, the humanities classes combine language arts, history and social studies. The curriculum then unifies grade levels by presenting a single thematic question, such as, "What makes an effective hospital?" Students answer this question by studying the role of technology in medicine (history, social studies), medical ethics (language arts, social studies, and history), and child development (language arts, psychology, math, and science).

Five Habits of the Mind

Fenway's curriculum stresses the development of (1) perspective and viewpoint, (2) evidence, (3) connection, (4) relevance, and (5) supposition. Students demonstrate these critical thinking, academic, and technical skills at two major exhibitions: the Junior Review and the Senior Institute. During the Junior Review, students must demonstrate what they have accomplished in their high school career. They present a portfolio of work to a review committee, which then determines if they will be able to move on to Senior Institute. The Institute, which may take one or two years, consists of seminars, advanced course work, a major research paper, a senior project, a senior internship, and completion of graduation portfolios.

Hands-On Learning Experiences

To create innovative learning experiences for its students, the school has arranged its calendar to accommodate a number of challenging activities. During Project Week, for example, the city of Boston becomes a giant classroom in which students are asked to wrestle with questions such as, "What makes a good museum?" and "What makes Boston a good place to live?"

Seniors participate in six-week, full-time internships, and are required to answer a research question related to their work experience as part of their Senior Internship Portfolio. For example, a student working in the Children's Hospital might research a question such as, "How are children with serious diseases treated by the health care system?" Evaluation of work-place performance during the internship is intensive, and the internship plays a fundamental role in students' education.

Students with Direction

Fenway's faculty is constantly searching for ways to improve its program and to make sure that it meets the needs of students. Faculty members want to ensure that students, who may be unclear about future career choices, have the flexibility to change their minds. They also want to make sure that students gain the academic skills they need to be successful in post-secondary education.

Both qualitative and quantitative data point to Fenway's success in engaging its students. For example, Fenway's average daily attendance is notably higher than that of other Boston Public Schools (95.2% versus 84%). Co-director Linda Nathan's claim that "we graduate our kids with a direction, whether it's college or work" is substantiated by the college enrollment statistics: 80% of Fenway's graduates go on to college, compared to 60% of graduates from other Boston Public Schools.

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The faculty is constantly searching for new ways to challenge students, leading one business partner to call Fenway a school "in perpetual motion."

Gateway Institute of Technology

Based on an analysis of projected growth areas in St. Louis business, the city decided to open a magnet school preparing students for careers in engineering and high-tech science fields. Teacher teams use a project-based teaching method to familiarize students with lab projects, teamwork, computers, and computer-driven equipment, as well as math and science concepts.

When St. Louis was faced with a court order to improve its desegregation of schools, it decided to replace three high schools with limited facilities or curriculum offerings, and looked to the future needs of students and the community. The result was Gateway, a science and technology magnet high school that prepares all of its students for college education and careers in engineering and high-tech science fields.

Out with the Old, In with the New

The plan to collapse three old schools and open a new one was intended to address three problems: (1) meeting the state court's demand for improvements in school desegregation for the district; (2) providing facilities and a curriculum to meet the needs of students in the three merging schools; and (3) improving the preparation for college and lucrative careers of the urban students in the area. The selection of science and technology as a focus was based on an analysis of projected growth areas in St. Louis employment. With several large engineering and medical employers in the area, the school decided to offer four career majors in the areas of Agriculture, Biology, and Medical/Health Sciences; Engineering Technology; Applied Physical Sciences; and Computer Science and Mathematics.

A new principal and faculty were hired mostly from the three now-closed schools. In the summer of 1992, a team of the school's educators attended an intensive summer institute sponsored by the National Center for Research in Vocational Education in Berkeley, California, to develop the new curriculum and course offerings for the students entering in the fall. The team of teachers, counselors, and administrators decided to offer an integrated vocational and academic curriculum focusing on mathematics and science in the contexts of the four career majors. They also agreed that the school would have to make significant investments in the area of ongoing staff development, so that the faculty could remain up to date on technology and the use of academic content in their chosen areas.

All Kids Can Learn High Levels of Math and Science

The school's graduation requirements exceed the state's by several credits. Gateway requires four years of math and science along with the usual four years of English and three years of social studies. Gateway chooses its incoming students by lottery, first from its designated feeder schools, then from among students at other middle schools who want to attend. Students and teachers often talk about the transformation that can occur in students who are encouraged by the emphasis placed on hard work and discipline to excel at Gateway's demanding math and science classes.

Entering freshman take an exploratory course, "Careers in Technology," that gives them exposure to the four career majors offered at Gateway and to the kinds of technology they will use in those fields. It is like a physics course, but much more hands-on than the physics classes offered in most high schools around the country.

As juniors and seniors, students take such courses as "Manufacturing Engineering" or "Industrial Chemistry," or work as interns or on longer research projects, often under the mentorship of scientists, doctors, and researchers at nearby Washington University, the Barnes-Jewish Medical Center, St. Louis University, or the University of Missouri–St. Louis. In fact, all seniors are

required to complete either an internship, which involves working off-site with a designated adult several hours a week, or a senior research project, which involves conducting new scientific research and writing an extensive research paper for credit in the required senior English class.

By 7:30 every Thursday morning, Norma Todd, a senior double-majoring in Pre-Medical and Pre-Nursing/Ambulatory Care, goes to the Barnes-Jewish Medical Center where she helps conduct patients' medical histories before they receive out-patient surgery. Then she heads over to a micro and cell biology lab at Washington University where she is completing research, begun last summer, to search for a fibrillar protein called M-70. She talks about her research with her Advanced Biology teacher, who is helping her prepare it for presentation in the district science fair.

Smaller Student Grouping

Gateway uses a structure called "Houses" for the freshman and sophomore classes, to reduce the fear and insecurity of the transition from smaller middle schools to the larger high school. Each House consists of approximately one hundred students, either freshmen or sophomores, with four teachers, one each of English, Math, Social Studies, and Science. The students take their classes with the four teachers, so they all get to know each other over the course of the school year. The teacher teams also use a project-based teaching method, with all of their classes working on one large project in teams of four or five students. The projects require skills and knowledge from each academic class, and are integrated so that students see the connection between what they learn in one class and what they discuss in another. Juniors and seniors are not grouped by Houses but by career majors. Classes are smaller, often ten to fifteen students, and the work atmosphere is intense and fast paced.

Choosing Careers

Gateway believes that it is not only possible but essential to prepare students for college and careers at the same time. Unlike some critics who argue that career preparation in high school is for "students who are not college-bound," Gateway's guidance and counseling department believes that career exploration and awareness are essential components of self understanding. Career exploration begins as a required class in the ninth grade, introducing all Gateway freshmen to the wide range of high-tech careers associated with each of the four career majors offered. This class also helps students identify and develop broadly defined work-related skills, such as work ethics, team building, and responsibility.

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Gateway's philosophy of career exploration has led to a change in the traditional roles of the teacher and counselor in the high school.

High School of Economics and Finance

Founded in 1993 as a collaboration between the New York City Board of Education and The Travelers Group, this school combines career education with a demanding college preparatory program. Its unique Sanford I. Weill Institute brings the financial community into the school. Wall Street becomes a "laboratory" that helps students connect what they learn in school with the demands of the working world.

Located in the heart of Wall Street, the High School of Economics and Finance offers its students a unique and challenging environment for intellectual and personal development. The high school, an outgrowth of the existing Finance Academy in New York City, is unified by its single career theme. While at the High School of Economics and Finance, students have the opportunity for extensive interaction with the surrounding financial community, primarily through the Sanford I. Weill Institute and a variety of work experiences.

Support and Incentives for High Academic Achievement

The High School of Economics and Finance was built on a commitment to high academic standards for everyone. The student body mirrors the diversity of New York City. All academic courses are offered at the Regents level, requiring every student to study at least three years of mathematics, science, and a second language. There is no tracking, and tutoring for these rigorous classes is available after school. In their first year at the school, students take Welcome to Wall Street, where they are introduced to careers in finance. They learn how to start their own businesses using a curriculum of the National Foundation for Teaching Entrepreneurship. Students progress to more advanced work, such as Personal Financial Planning, Banking and Credit, and International Finance, and may take up to four undergraduate courses at Baruch College.

Teachers of every academic subject weave the thread of economics into their disciplines to help youngsters understand its impact on virtually all aspects of our world. An extensive training program puts teachers in contact with industry professionals, enables them to intern in financial firms, and connects them with colleagues in a national network of Academy of Finance schools. Every teacher serves as a "Personal Consultant" for a small cluster of students to encourage academic excellence and the development of each child's talents.

Learning from the Business Community

Every Wednesday afternoon, students participate in seminars, field-trips, and workshops at the Weill Institute, many of which are conducted by the school's business partners. Seminar topics range from "Women Professionals" and "Running a Wall Street Firm" to SAT prep and martial arts classes. Seminars run on an eight-week cycle, allowing students to sample a variety of offerings in the course of the school year. One option is the Quality Center, run by Lehman Brothers and Dillon, Read. Here, students can apply for a personal instructor for either remedial or accelerated assistance. For example, one student may need extra help in mathematics, and another

may be interested in learning Japanese. The business partners try to match each student with an employee from their firm who can provide appropriate instruction. The Wednesday workshops also serve as staff development for the academic teachers, exposing them to more facets of the financial world.

Valuable Work Experience

All students must go through the following work experience sequence to graduate: 120 hours of community service, 120 hours of an unpaid internship, and 240 hours of a paid internship. To prepare students for these "real-world" experiences, the school requires a Job Skills Training class and a Communications Skills Training class. Students keep a portfolio of their internship evaluations. Positive evaluations for all three work experiences are required for graduation. The Weill Institute Manager, Kristie Nguyen, explains that the paid internships are a real incentive to students and are held in high esteem.

Because of the commitment by the business community, students have opportunities to gain experience that would not be available to them otherwise. One student, for example, is completing his unpaid internship at ExtraNet. He manages the internal E-mail system at the firm and is highly valued by his supervisor. Other students have internships at Republic National Bank, Smith Barney, and Oppenheimer.

Although the school is relatively young (it will graduate its first class in 1997), its design and resourcefulness are a useful model for other schools.

The High School for Economics and Finance is setting an innovative example for education in finance, insurance, and real estate.

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Sussex Technical High School

Improved programs and higher test scores have proven the success of occupational clusters at Sussex Technical High School. Students and teachers regularly collaborate to integrate courses within the clusters. Expectations of academic and technical achievement have risen over the course of the reform——and have been met.

In just five years, Sussex Technical High School in Georgetown, Delaware, has been transformed from an area vocational school with declining student enrollment and low academic achievement to a restructured high school that offers students a challenging, integrated curriculum. The school's success in raising expectations and academic and technical achievement has not gone unnoticed; it currently has a waiting list and anticipates having to turn away a growing number of prospective students.

Among its successes, Sussex Tech considers the improved quality of programs and higher test scores as evidence that the new system is working. However, improved student and teacher morale and successful implementation of clusters and block scheduling are also high on the list of real improvements.

Success Through Occupational Clusters

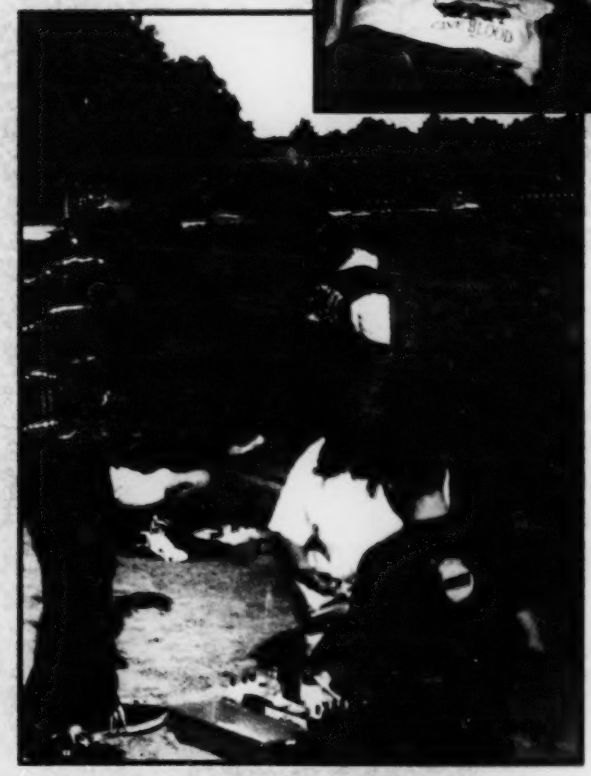
Sussex Tech has been restructured to promote both high expectations and the integration of academic and vocational education. The school is part of the *High Schools That Work* project of the Southern Regional Education Board, which promotes these ideas. The high school reorganized its occupational program into four clusters (Automotive/Diesel Technologies, Business Technologies, Health/Human Services Technologies, and Industrial/Engineering Technologies). In addition to its technical instructors, each cluster has a group of designated academic teachers in English, math, science, and social studies. Ninth graders rotate through a series of exploratory units and choose their cluster at the end of the year.

Each cluster has developed a challenging program of study that includes academic and technical courses. All remedial and general track courses and study halls have been eliminated. The programs of study include advanced math and science courses in each occupational area. For example, all students are required to take three years of math and science and four years of Tech Prep English courses. To support this more rigorous course work, the high school has instituted an after-school tutoring program staffed by teachers.

The schedule at Sussex Tech has been radically altered to accommodate this cluster approach and to promote integration. Classes are block scheduled, with technical classes meeting each day for 90 minutes and academic classes meeting for 90 minutes every other day. In addition, related courses have been developed for each cluster and for individual programs in both academic and technical areas (an example is a blueprint skills course for the Industrial/Engineering Technologies cluster or related sociology for the Health/Human Services Technologies cluster). Every morning before school starts, teachers are given a 45-minute personal planning period and a 30-minute cluster planning time. Teachers hold formal meetings within their clusters once a week, with the remaining four cluster-planning periods reserved for ad hoc meetings among individual teachers.

Integration Projects for All Grade Levels

At Sussex Tech, the teachers take integration very seriously. The administrators and teachers have identified an



integration project for each grade level, to include all students in that grade. Students in the eleventh grade, for example, participate in American history integration projects. Students enrolled in the Industrial/Engineering Technologies cluster can read about the American Revolution in their history courses, then fashion tools and implements modeled on those of the Revolutionary period.

Finally, all twelfth graders are required to complete an integrated senior project. Over the course of a year, for example, students in the Industrial/Engineering Technologies cluster constructed a house for one of their projects. All students were assigned math problems about the amount of materials required to complete the project and the costs of these materials. A community resident moved into the house after it was completed.

Collaboration Between Students and Teachers

Students at Sussex Tech are regularly asked to reflect upon the ways in which various disciplines can be integrated. Math teachers ask their students to discuss and write about how math is related to their technical area. Teachers and students brainstorm about projects that will integrate academic concepts into areas of career interest.

Students at Sussex Tech are regularly asked to reflect upon the ways in which various disciplines can be integrated.

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Thompson School District

An investigation of current research and surveys of past students led the Thompson School District to establish a "career pathways" program in its high schools. Students now benefit from individualized Career and Academic Plans, developed under the guidance of counselors, teachers, and parents.

When it comes to educating all students to high standards, the Thompson School District gives new meaning to the word "commitment." For the communities of Loveland and Berthoud which make up the district, reform meant thinking about educational change and partnerships from kindergarten through high school and beyond. Thompson's effort is district wide. It extends to every school and involves parents, students, teachers, administrators, employers, and community leaders. The mixed suburban-rural district, which is about an hour north of Denver, Colorado, comprises three comprehensive high schools, and an alternative high school and a network of four middle schools and eighteen elementary schools.

Career Pathways

This District's effort began seven years ago when it took a bold step in education improvement by instituting ambitious district standards and assessments. The decision to establish career pathways was made as a result of a concerted effort to help all students achieve high academic standards and prepare for the future. It was based on research on effective teaching and learning practices, broad community input, and a survey of past students by key district and school personnel.

All of the district's high schools now operate under a site-based management structure and all students are held to a demonstrable set of academic standards. The district's current academic standards now exceed those set by the state. The move to career majors has been a shared effort under the guidance and support of district administration. Yet each school has approached implementing career pathways in its own way. For example, some have emphasized curriculum development and team teaching; others have focused on developing work-based learning experiences for their students. Teachers are infusing career-related activities into their academic instruction.

Schools Working Together

According to district officials, it was the districts' receipt of federal school-to-work opportunity money that really brought everyone together, breaking down the old model where schools used to compete against one another and "everyone wanted to grab their piece and run." In the words of one district official: "[The money] was the ultimate unifying force, because when that money came in, the [staff] began to realize it would be better if we worked together on staff development, work-based learning experiences, and that kind of thing, because we all have some knowledge, but we don't have all the knowledge...and that really unified us....It was like winning the lotto." The principal of one high school noted that getting staff to buy in also took on a momentum of its own, when staff began to see the power of school-to-work as a tool to reach students and make their education more meaningful.

Counseling and Career Awareness

Counseling staff at the schools are key to the district's efforts, and counselors' jobs have been redefined perhaps more dramatically than teachers' practices. The counseling staff participated in the district's surveys of former students, which precipitated many of the changes that the district has undertaken. Each student now has an integrated Career and Academic Plan (CAP), developed by the counseling staff, student, parents, and teachers. It is

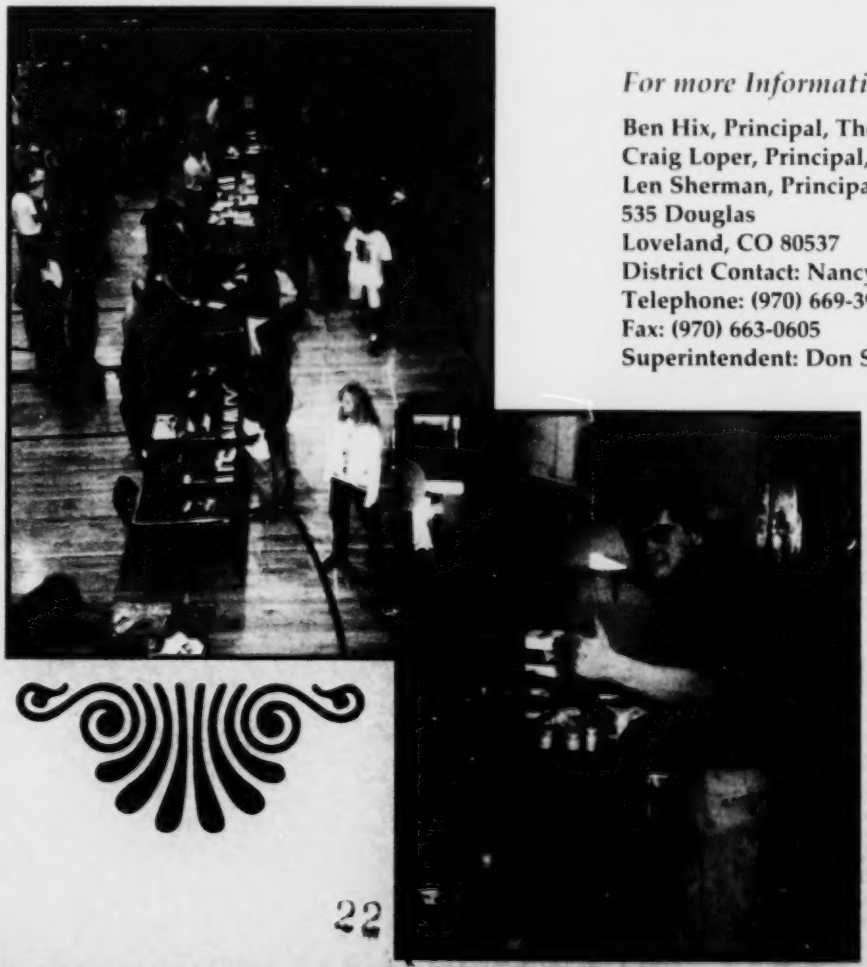
through the development of this plan that students explore the skills and educational requirements of various career clusters. The concepts of career awareness are also moving steadily down through the earlier grades in middle and elementary school.

The district utilizes the ACT Discover program, developed around the work of researcher John Holland and others, as the primary structure for its career pathways. Discover information is recorded in the computerized CAP of each student. In addition to interest inventories, Discover provides students with computer-accessed information on specific careers within each pathway, including education requirements, employment opportunities, and current pay ranges. Students are given hands-on experience with Discover in class, and have access to the program's career database through the school's Information Resource Center .

Partnerships with Employers and Colleges

Through ties to the Berthoud and Loveland Chambers of Commerce, the three high schools have developed business partnerships with major employers, including Hewlett Packard, McKee Medical Center, Kodak, and Bank One. Business partners collaborate with the schools to help design budgets, strategic plans, and work-based learning programs for both teachers and students. In addition, the district is developing relationships with local human service agencies to help provide the range of social and support services students need.

The district has also established strong partnerships with nearby post-secondary institutions, including Colorado State University, the University of Northern Colorado, Aims Community College and Front Range Community College. Students in the high school can take courses at the colleges while still in high school, and the schools are working to ensure that students can make smooth and successful transitions from high school to college. For example, students in the lab technicians program in high school can articulate to two- and four-year programs to prepare for careers ranging from lab technician to doctor of veterinary medicine. One significant mark of improved student achievement has been the jump in post-secondary enrollment. Over the last five years, the percentage of students going on to two- or four-year colleges has jumped from 45, 50 and 55 percent to 78, 70 and 75 percent at Loveland, Thompson Valley and Berthoud High Schools respectively.



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The move to career pathways has been a shared effort by Thompson schools, with the support of district administration.

Walhalla High School

At Walhalla High School, the community is collaborating with business and industry partners to continually improve students' school- and work-based experiences.

Walhalla High School, in the Appalachian region of South Carolina, has restructured its education program to provide students with meaningful school- and work-based experiences. Student-oriented guidance and counseling programs are centered around career clusters and articulated with the nearby Hamilton Career Center and with area post-secondary institutions.

Counseling and Career Guidance

At Walhalla Middle School, "Planning for a career has three distinct steps: self-awareness, exploration, and preparation." In the sixth grade, each student begins to develop a Career Portfolio, which includes career, extracurricular, and academic information that each student maintains throughout and beyond the high school years.

The middle school Career Specialist ensures that students and their parents or legal guardians are exposed to and familiar with potential career options and the curricular format at the high school. The career clusters are Business, Engineering, Health Sciences, Trades & Technology, and Arts/Sciences/Human Services. Certain courses in the career clusters award dual credit toward students' post-secondary career plans. The academies are the Finance Academy and the Ford Academy of Manufacturing Sciences (FAMS), which is offered at the Hamilton Career Center. Students learn that courses in both academies allow them to earn college-level credit. Among the methods used to inform students about career choices are interest inventories, class presentations of current and future career information, worksheets, videos, guest speakers, and field trips. In addition, the middle school hosts a Career Fair where business and industry professionals talk to students about their training and experiences.

During the second semester of the eighth grade, students and parents review the four-year high school course plan with the Career Specialist. At this time, students make an initial selection from the five career clusters and two academies (new in 1995).

After the review process is completed, the middle school Career Specialist forwards the student's Career Portfolio to the high school. Communication between the middle school and the high school does not end with this transaction. "We're pretty much in constant communication," commented the high school Career Specialist. "I think the two schools have just worked beautifully together to make sure that we're protecting the integrity of the program."

At the high school, students review their career plans with a Guidance Counselor and Career Specialist. Since both these advisors confer with the middle school Career Specialist, students enjoy an easier transition between schools. The Career Specialist conducts information workshops for students throughout the high school years. At these sessions, students go from learning more about themselves in grade nine to learning about filling out job applications, interviewing techniques, and creating resumes in grades ten, eleven, and twelve. The Career Specialist also arranges for students, parents, faculty, and staff members to gain work-based experience through programs including job shadowing and internships.

The Structure of Career Clusters

Realizing that traditional schooling would not adequately prepare students for their roles in the twenty-first century, the school's principal, faculty, and staff members used input from the business and industry communities to begin reassessing their educational programs during the

1987–88 school year. Collaborative efforts with the Southern Regional Education Board and PACE, the Partnership for Academic and Career Education (a tech-prep consortium), assisted Walhalla High School in initiating a whole school reform program. Later cooperation with the Hamilton Career Center and Tri-County Technical College resulted in post-secondary articulation agreements.

In concert with State Department initiatives, Walhalla High School has organized the career clusters along a College Prep and Tech Prep continuum. The College Prep focus provides students with extensive preparation for college-level work leading to a chosen career. The Tech Prep focus prepares students for further technical college training or for immediate entry into a chosen career. Each focus requires the same number of credits for graduation. The Finance Academy is slated to join the FAMS at Hamilton Career Center, thus becoming available to other high schools in the district.

A Dedicated Faculty and Staff

Walhalla High School has dedicated and nurturing faculty and staff members. Not satisfied with the status quo, they look for ways to improve student career options and experiences. Faculty development activities initiated from the beginning of the reform movement continue to include visits to business and industry sites, from which faculty members bring new experiences and knowledge back into their classrooms.

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According to one student, "If we understand what's out there, and we know what we have to do to grasp it, that's what Walhalla High School is all about."

William H. Turner Technical Arts High School

Turner Tech's goal is to instill "information literacy and lifetime learning skills" in its students. Its five academies enable students to earn a "two for one" diploma, combining high school credits with state-certified career training, preparing them for college and careers.

"Turner Tech," as it is known by its students, is located in an urban section of northern Dade County, Florida. Turner Tech is a magnet school in the greater Miami area operated by the Dade County Public School system. It draws students from across the entire county, with some students traveling an hour and a half each way to attend the school.

High Academic Standards

The current school, completed just three years ago, is wired with state-of-the-art technology, including a television production facility from which students produce daily broadcasts of school announcements and activities. The brightly colored modern facility is filled with students in similarly bright-colored uniforms—the color of their polo shirts corresponds to the students' chosen career academy.

The school's modern facade belies its humble beginnings. The current site of the school housed the Dade County High School of Agriculture for over 30 years, the predecessor to Turner Tech's Agriscience Academy. The school has integrated academic and technical and graduation standards, making Turner Tech a unique Dade County Public School. These standards, coupled with three years of recruiting efforts at over thirty-four district middle schools, have resulted in the school's receiving nearly two times the number of applicants as it has available seats.

The Two-for-One Diploma

One of the benefits of attending Turner Tech is that students can earn a "two for one" diploma. This means that students can earn a traditional high school diploma, qualifying them for entrance into either two- or four-year colleges, and at the same time receive state-certified career training. The student handbook, included as part of a daily planner issued to each student, identifies the focal points of the Turner Tech curriculum as developing "information literacy and lifetime learning skills among all students."

Integrated Curriculum in Seven Academies

The cornerstone of Turner Tech's instructional strategy is its integrated curriculum. Students and teachers are assigned to one of the school's seven academies: Agriscience, Applied Business Technology, NAF/Fannie Mae Academy of Finance, Health, Industrial Technology, Public Service/Television Production, and Residential Construction. Teachers work in teams within each academy to develop integrated thematic units, which apply core learning competencies in their respective academic disciplines within the context of the students' selected career major. For example, during a health awareness fair, freshmen and sophomores administer eye and hearing exams and take the blood pressure of teachers and staff, while health professionals observe students' work. This health awareness experience allows students to practice their skills, with an emphasis on mastery rather than memory. Juniors, having developed their resumes, are interviewed by local health agencies and hospitals at the fair. Teachers meet regularly during a common planning time to develop Integrated Curricular Units, or ICUs.

Students select a career academy when they enter the school in the ninth grade, and by successfully completing

a sequence of core and elective courses, gain certification in one or more related fields. For instance, under the Health Academy, students can gain certification in Patient Care Assisting, First Medical Responder, Health Unit Coordinator, Dental Lab Assisting, or Medical Lab Assisting. All students compile an active career portfolio, which includes examples of their individual work as well as a current resume.

Workplace Experience and School-Based Enterprise

Under each of the academies, students participate in a variety of hands-on experiences in actual workplaces and school-based enterprises. Both students and teachers have opportunities to "job shadow" employees of many of the school's business partners, providing students with a richer understanding of the types of jobs available in their chosen career path, and giving teachers greater exposure to how the academic subjects they teach are applied in the world of work. In their junior and senior years, students can participate in more extensive internships and apprenticeships, and may receive credit toward graduation from supervised work-based learning experiences, where employers provide detailed evaluations of students' on-the-job performance .

Several of the academies also operate school-based enterprises, which generate money for supplies as well as scholarship funds for the school's graduates. For instance, the Agriscience Academy raises both livestock and horticultural stocks, and markets them through public auctions and sales. Similarly, the Academy for Residential Construction works in conjunction with local home builders' associations to design, build, and sell a residential home, the profits from which are used to fund student scholarships.

Students Taking Pride in Their School

Yet for all its modern technology and dedicated staff, the singularly most impressive aspect of Turner Tech is its students' enthusiasm. Students spoke of how their experiences at Turner Tech had opened their eyes to a variety of career options and convinced them of the importance of continuing into post-secondary education. "I look at my friends who stayed in my neighborhood school, and think of how lucky I am to be here. Sure I have to work a lot harder here, but I have a plan, a future."

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Workplace experience and school-based enterprises are an integral part of education at Turner Tech.

Honorable Mention Schools

We congratulate the following twenty-one schools which received certificates of Honorable Mention for the Seventh Annual Business Week Awards: New American High Schools: Preparing Students for College and Careers.

Aviation High School
Long Island City, New York
Telephone: (718) 361-2032
Eileen Taylor, Principal
Margaret R. Harrington, Superintendent

Benson High School
Omaha, Nebraska
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Frank Hoy, Principal
Norbert Schuerman, Superintendent

Bethel School District
Spanaway, Washington
Telephone: (206) 536-7236
Marilyn Ash, Executive Director of Applied Learning
Don Berger, Superintendent

Bryan Senior High School
Omaha, Nebraska
Telephone: (402) 557-3100
Robert L. Whitehouse, Principal
Norbert Schuerman, Superintendent

Central High School
Louisville, Kentucky
Telephone: (502) 485-8226
Harold Fenderson, Principal
Stephen Daeschner, Superintendent

Flower Vocational High School
Chicago, Illinois
Telephone: (312) 534-6755
Dorothy J. Williams, Principal
Hazel Stewart, Regional Education Officer

George Washington High School
Philadelphia, Pennsylvania
Telephone: (215) 961-2001
Harry Gutelius, Principal
David W. Hornbeck, Superintendent

Georgetown High School
Georgetown, Texas
Telephone: (512) 819-0320
Michael Cargill, Principal
Jim Gunn, Superintendent

Gloucester High School
Gloucester, Virginia
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C. Hampton Gray, Principal
J. Larry Hoover, Superintendent

Hamilton High School
Milwaukee, Wisconsin
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Clark Lovell, Principal
Robert Jasna, Superintendent

Hiram Johnson High School
Sacramento, California
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Arthur A. Benjamin Principal
Ted Kimbrough, Superintendent

Leander High School
Leander, Texas
Telephone: (512) 435-8000
Charles Rouse, Principal
Tom Glenn, Superintendent

Maritime and Science Technology High School
Miami, Florida
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Linda Eads, Principal
Octavio Visiedo, Superintendent

Middle College High School
Long Island City, New York
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Donald J. Freeman, Principal (Acting);
Cecilia L. Cullen (on sabbatical)
Stephen E. Phillips, Superintendent

Orr Community Academy
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Cynthia Felton, Principal
Armando Almendares, Regional Educational Officer

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Jack Bierwirth, Superintendent

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Nicola Genco, Principal
Joseph DeJesus, Superintendent

Westwood High School
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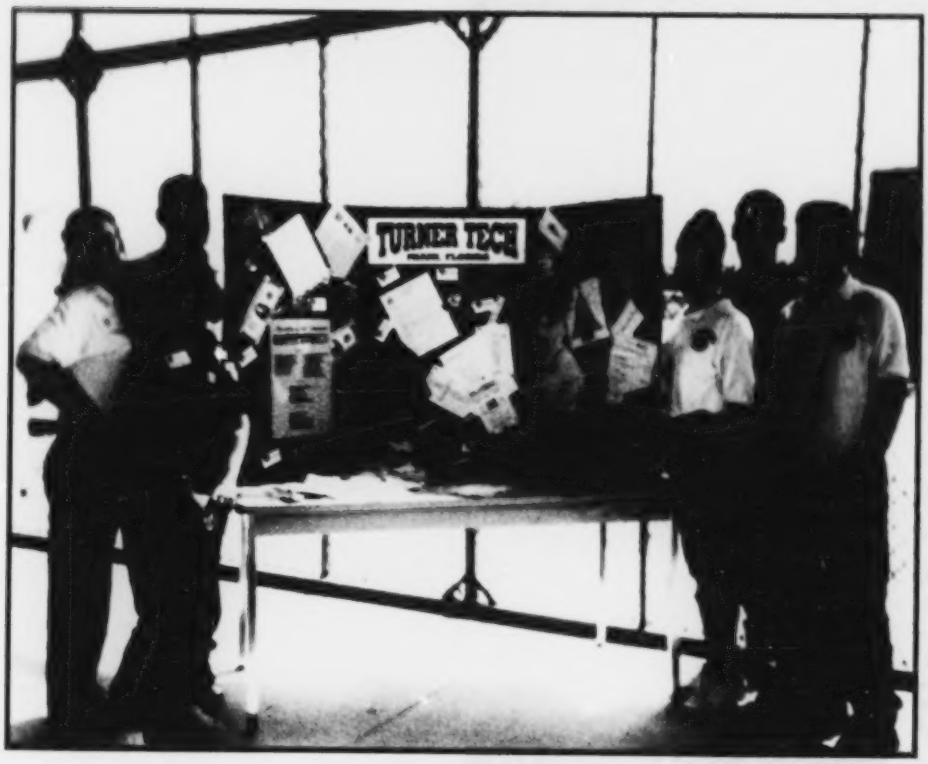
E. Wayne Gent, Principal
David Mosrie, Superintendent

Winnacunet Cooperative High School
Hampton, New Hampshire
Telephone: (603) 926-3345
Roberta G. Neuman, Principal
James Weiss, Superintendent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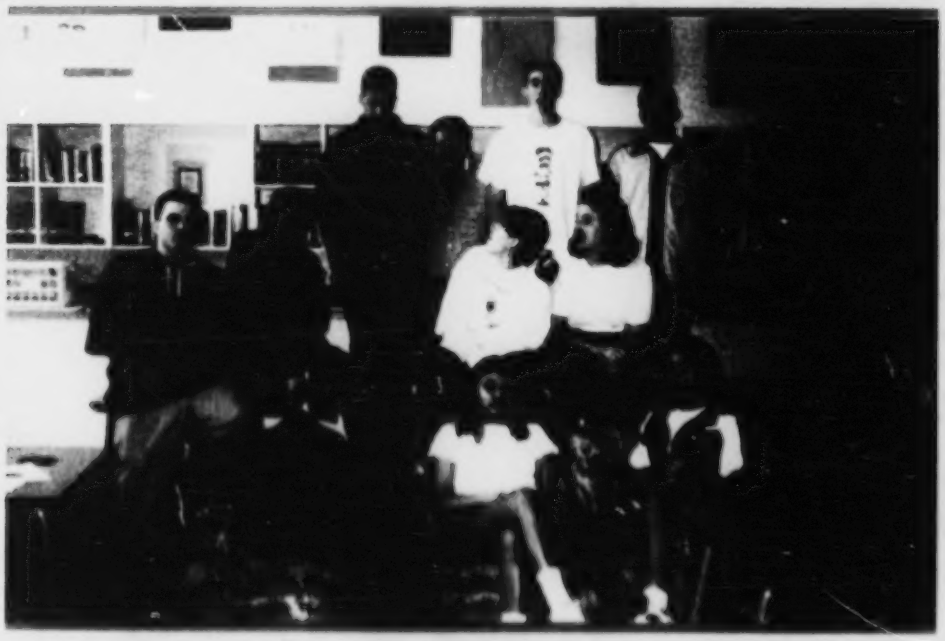

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